



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,955	01/29/2004	Yukio Michishita	00USFP606M.K. DIV	2335
21254	7590	12/02/2004	EXAMINER	
MCGINN & GIBB, PLLC 8321 OLD COURTHOUSE ROAD SUITE 200 VIENNA, VA 22182-3817			TRAN, DZUNG D	
			ART UNIT	PAPER NUMBER
			2633	

DATE MAILED: 12/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/765,955

Applicant(s)

MICHISHITA, YUKIO

Examiner

Dzung D Tran

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-11 and 14-16 is/are rejected.
- 7) ☒ Claim(s) 12 and 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/12/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 14 recites the limitation "third wavelength dispersion compensator" in line 3.

There is insufficient antecedent basis for this limitation in the claim.

Claim 15 recites the limitation "fourth wavelength dispersion compensator" in line 3.

There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Otani et al. US patent no. 6,115,156 in view of Prior Art figure 1.

Regarding claim 9, Otani discloses a demultiplexer device 19 (col. 3, line 46-47) (same as light branching apparatus), comprising:

an optical coupler (20, 21, 22 , col. 3, line 8) (same as splitter) which splits an optical signal for a plurality of channels ($\lambda_1 \dots \lambda_4$) on a first optical fiber (1) into at least a first optical channel signal on a first channel (channel λ_4) of a second optical fiber (fiber that output S1) and a plurality of second optical channel signals on a plurality of second channels (channel $\lambda_1, \lambda_2, \lambda_3$) of a third optical fiber (fiber that output S2, S3, S4); and

a first equalizing fiber 2 (same as wavelength dispersion compensator) which is provided for said first channel (channel λ_4) and compensates wavelength dispersion of said first optical channel signal (channel λ_4) due to the second optical fiber (fiber that output S1) (col. 1, lines 51-54) . Although Otani does not specific disclose equalizing fiber 2 compensates wavelength dispersion of said first optical channel signal (channel λ_4) due to the optical splitter. However, Otani discloses that equalizing fiber 2 is fully compensated for optical signal S1 (col. 1, lines 51-54) that is passed thru optical splitter 20. Therefore, if it is not inherent, it would have been obvious to one skill in the art that at the equalizing fiber would compensated wavelength dispersion of said first optical channel signal (channel λ_4) due to the second optical fiber (fiber that output S1) and due to the splitters (20). Otani does not disclose a first optical fiber connected to a first station; a second optical fiber connected to a second station; a third optical fiber connected to a third station. However, Prior art, in figure 1 discloses a WDM system that include optical brancher 13, having a first optical fiber connected to a first station

Art Unit: 2633

11; a second optical fiber connected to a second Station 12; a third optical fiber connected to a third station 14. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to connect the terminal stations taught by prior art connected to the de-multiplexer of Otani. One of ordinary skill in the art would have been motivated to do this in order for properly distribute the optical signals to end users.

Regarding claim 10, Otani discloses a second wavelength dispersion compensator 23 which is provided for said plurality of second channels (channel λ_1 , λ_2 , λ_3) and compensates wavelength dispersion of said plurality of second optical channel signals (channel λ_1 , λ_2 , λ_3) due to said optical splitter.

Regarding claim 11, Otani further discloses first equalizing fiber 2 (same as wavelength dispersion compensator) which is provided for said first channel (channel λ_4) and compensates wavelength dispersion of said first optical channel signal (channel λ_4) due to the second optical fiber (fiber that output S1).

5. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otani et al. US patent no. 6,115,156 in view of Prior Art figure 1 and further in view of Bergano US patent no. 6,137,604.

Regarding claim 16, as per claim 9 above, Otani and Prior art figure 1 disclose all the limitations, except for plurality of optical channel signals are compensated in units of channels, and said first wavelength dispersion compensator includes at least a first wavelength dispersion compensating element for the channel of said first optical

Art Unit: 2633

channel signal. Bergano discloses a dispersion equalizer 105 of figure 1 that compensating the wavelength dispersion per each channel (i.e. sub-band) see figure 3. At the time of the invention was made, it would have been obvious to a person of ordinary skill in the art to include the dispersion equalizer that is disclosed by Bergano in the system of Otani and Morikawa. One of ordinary skill in the art would have been motivated to do this since the dispersion equalizer device of Bergano offers advantage for compensating wavelength dispersion of each optical channel in the variable span distance.

Regarding claims 14 and 15, as far as examiner understood, Bergano discloses third wavelength dispersion compensator and fourth wavelength dispersion compensator (205_1 to 205_N) which is provided for said first channel and third channel and compensates wavelength dispersion of said first optical channel signal and third optical channel signal due to said second optical fiber (fiber that output S1).

6. Claims 12 and 13 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Morakawa et al. U.S. patent no. 6,404,523. Wavelength division multiplexing system and its termination
- b. Mizrahi U.S. patent no. 6,373,609. Wavelength tailored dispersion compensation apparatus
- c. Delavaux et al. US patent no. 5,608,562. Optical communication system with adjustable dispersion compensation
- d. Cvijetic et al. US patent no. 5,917,635. Optical repeaters for single and multi-wavelength operation with dispersion equalization

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Application/Control Number: 10/765,955
Art Unit: 2633

Page 7

DT
11/18/2004

Hanh Phan
Hanh Phan
Primary Examiner
11/24/04